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AMD Developer Conference, Bangalore



Open source software

Allows developers worldwide to collaborate and benefit.

Strategic elimination of vendor lock-in

OSS naturally creates multiple vendors

Improved security

Proven security through better technology & threat response record

Auditability

Customers and industry can verify standards adherence, quality & flexibility

Cost reduction in multiple dimensions

Hardware; system administration; compute transactions/watt; license management

Solution Ecosystem

OEM and ISV suppliers across the IT industry are focusing on delivering OSS solutions

Technology

All leading software technology development today is being done under the OSS model

Performance , Maturity , Choice

More suppliers than any proprietary offering = more improvements, more testing, greater selection

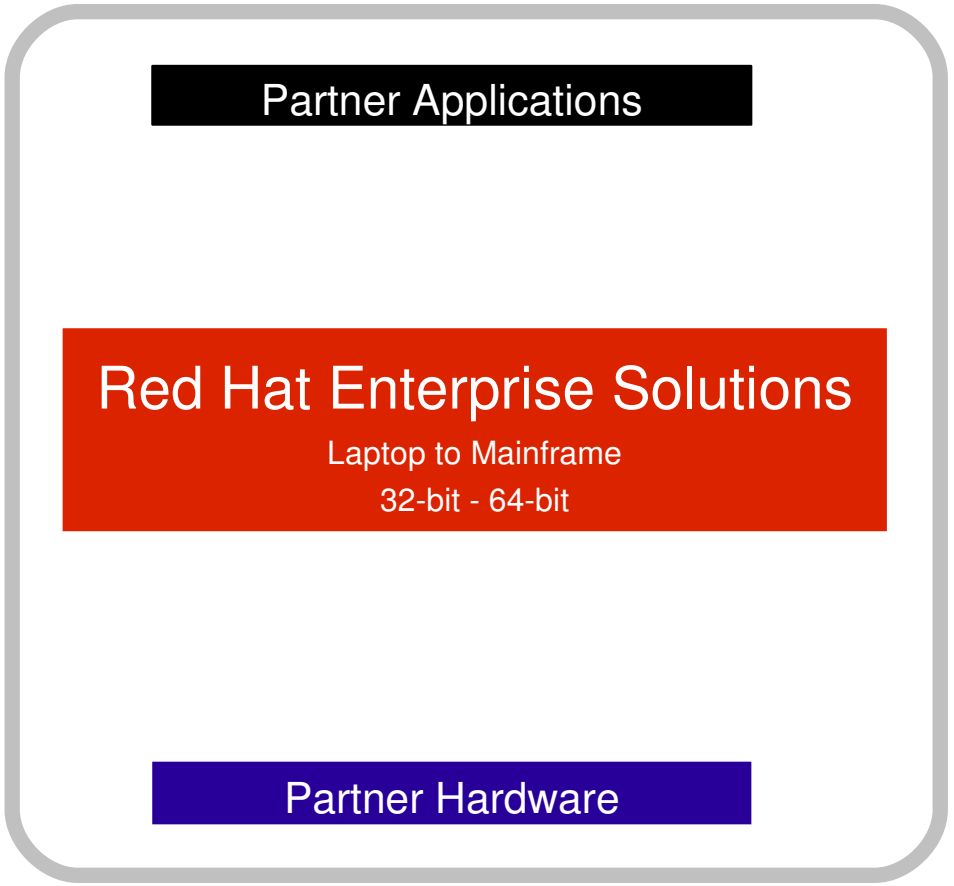
What Red Hat has done

- Deliver trustworthy, cost-effective solutions based on the best of collaborative development

Open source projects

Fedora™ PROJECT

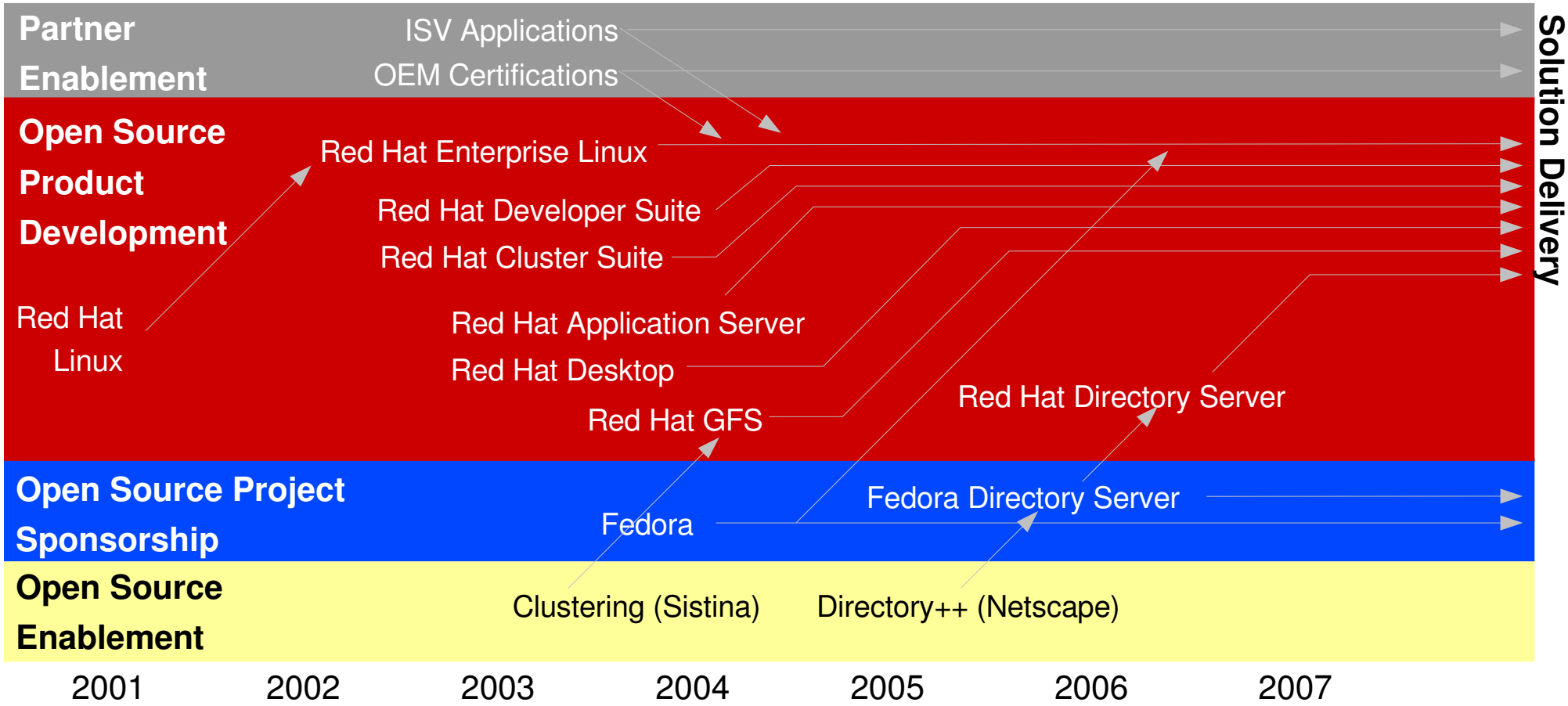
Technology development environment – sponsored by Red Hat



Red Hat solution ecosystem

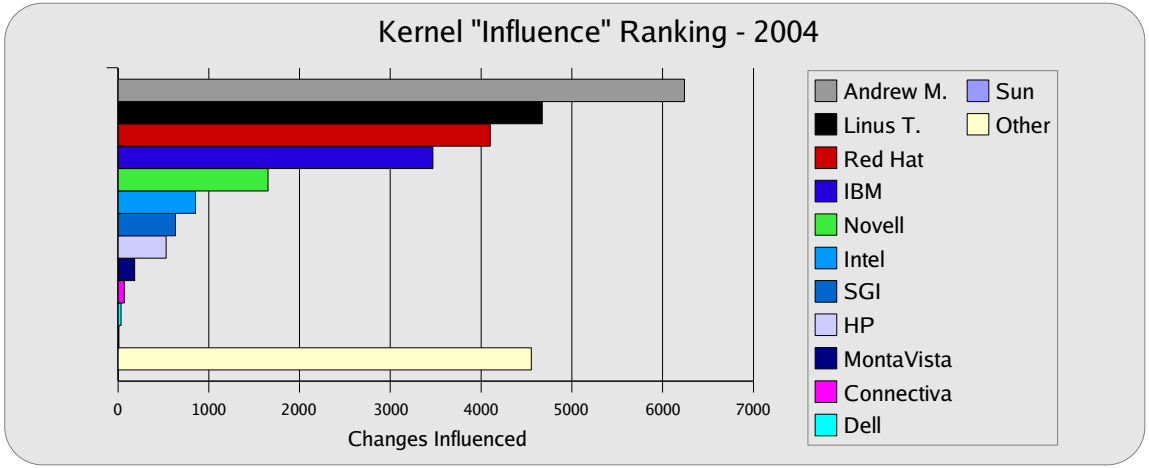
Red Hat Eco System

- The Red Hat ecosystem combines open source community sponsorship and commercial product delivery – smoothly integrating disparate technologies.
 - Partner hardware and software solutions
 - Acquired technologies released under GPL to accelerate development



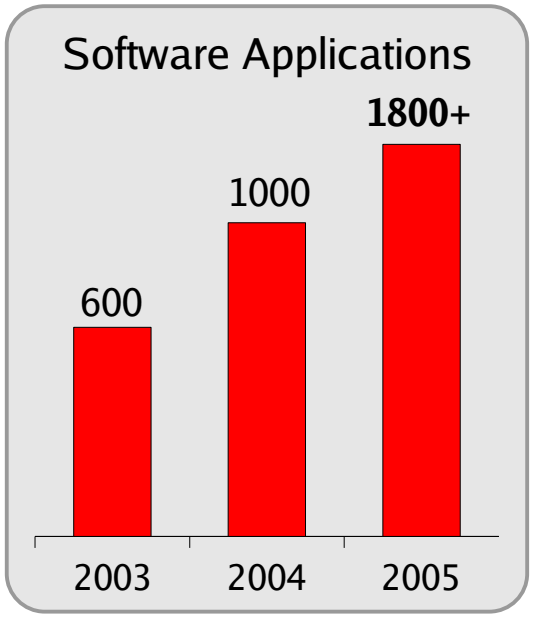
Interconnectivity and Innovation

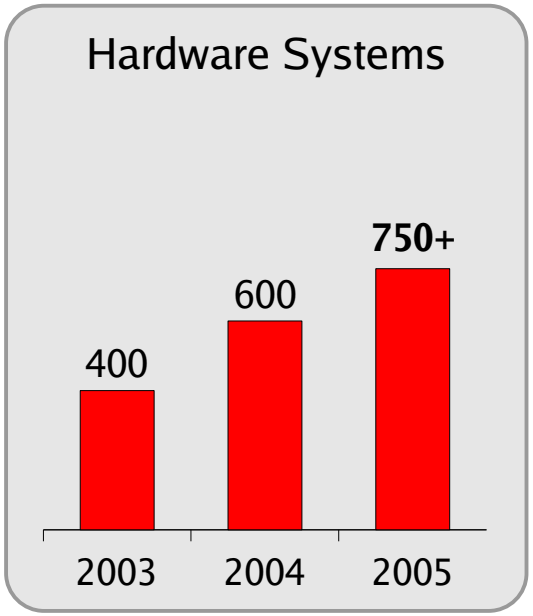
- Open source software ensures that the broadest collaboration of suppliers work together to create the optimum operating system environment
 - Red Hat leads the field



Kernel BitKeeper analysis, January 2005 Influence = feature creator, reviewer, or acceptor

- Adoption of the Red Hat ecosystem by OEM and ISV partners has resulted in the very rapid growth of certified platforms and applications
 - Red Hat leads the field



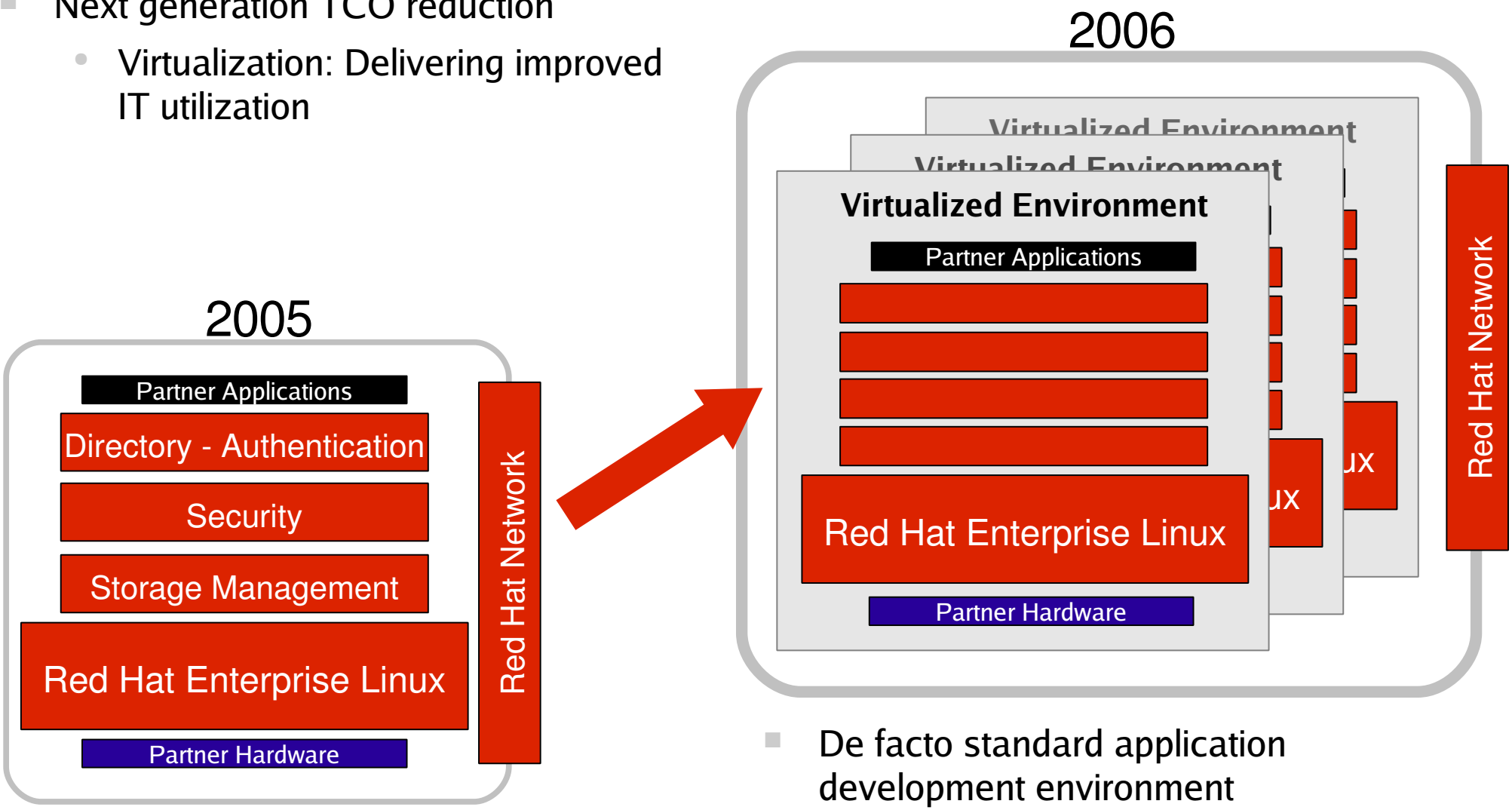


RED HAT RATED #1 IN VALUE TWO YEARS RUNNING

- #1 at overall value
- #1 at meeting ROI expectations
- #1 at lowering IT costs

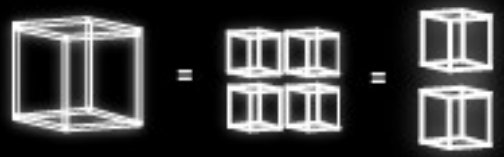
Focus: Improved value

- Next generation TCO reduction
 - Virtualization: Delivering improved IT utilization

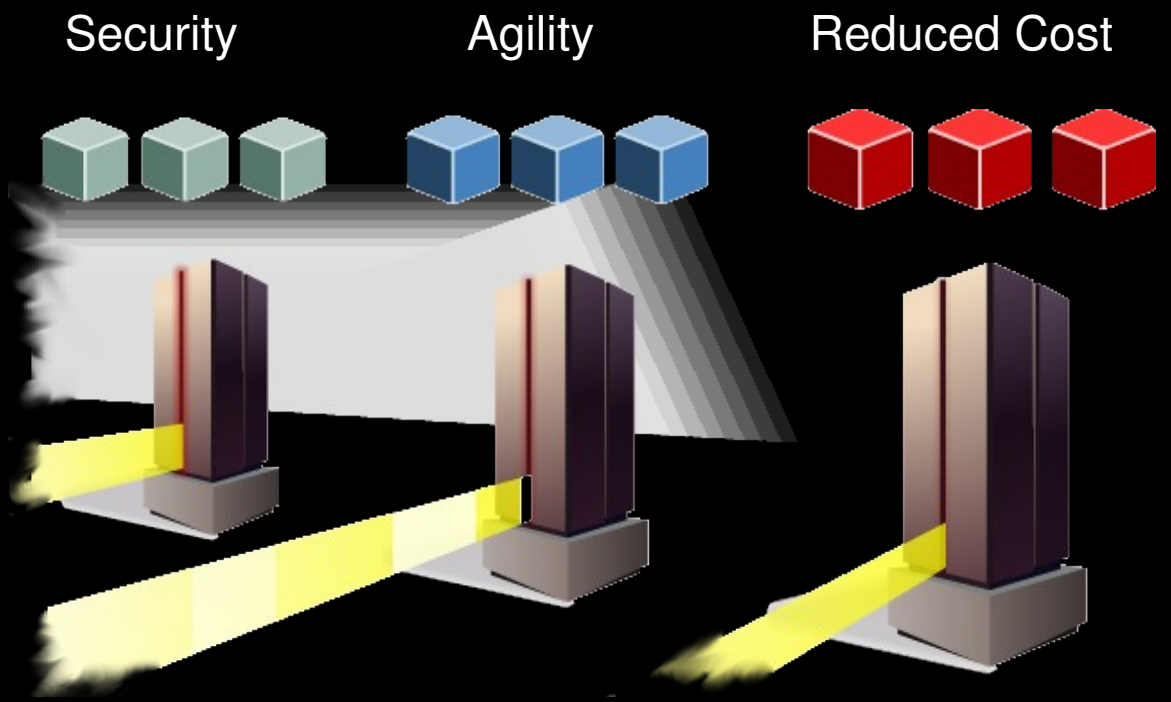


- De facto standard application development environment

INTEGRATED **VIRTUALIZATION**



Virtualization



- Product features are subject to change prior to final product availability.

redhat.

What is Virtualization?

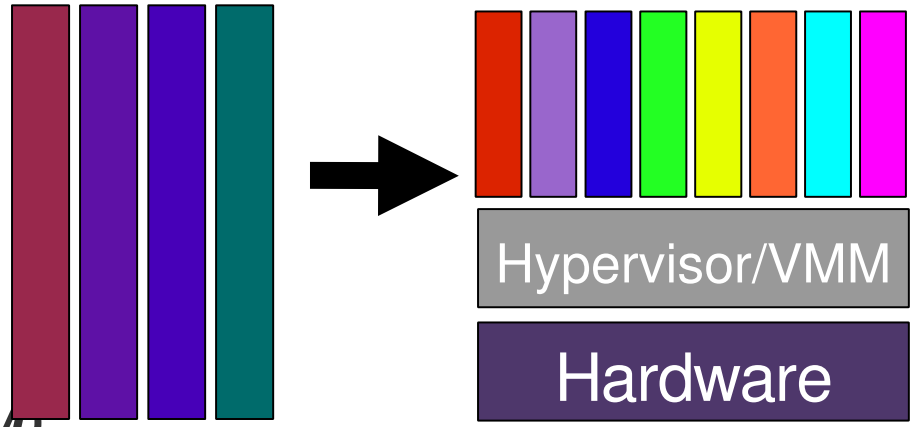
- Multiplex one machine into different "*Virtual Machines*" VMs
- Allows a "*Guest*" OS to run

 under control of a supervising

 master program that is called:

 "***Hypervisor***" or

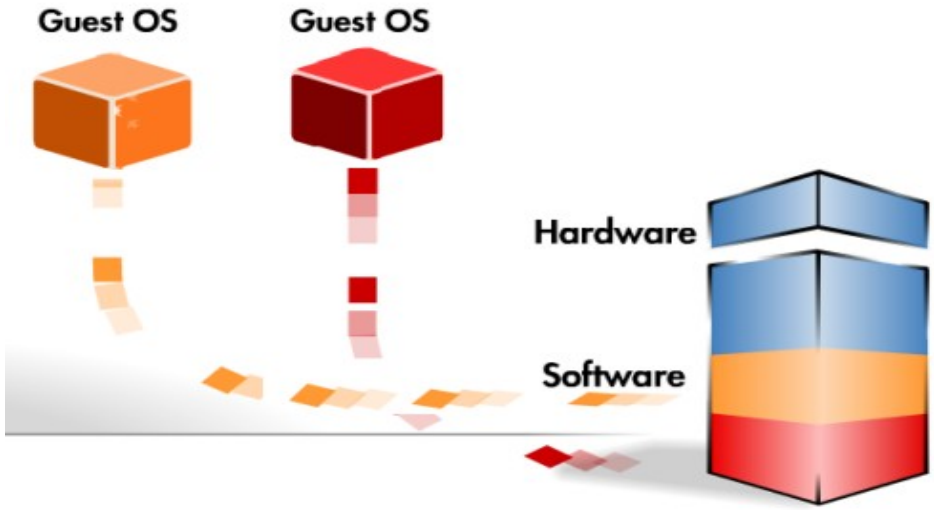
 "***Virtual Machine Monitor (VMM)***".



- Hypervisor / VMM Functionality:
 - Virtualizes System Resources
 - Provides Scheduling of host/guests
 - Intra-guest communication

Xen Virtualization Technology

- The Leading Hypervisor Technology, Developed by the Open Source Community working with XenSource.
- Almost native OS Performance
- Separate the Server Hardware from the Server Software resulting a guest Operating Systems that:
 - Completely and Securely Isolated
 - Allows different workload to co-exist on same physical hardware sharing resources safely



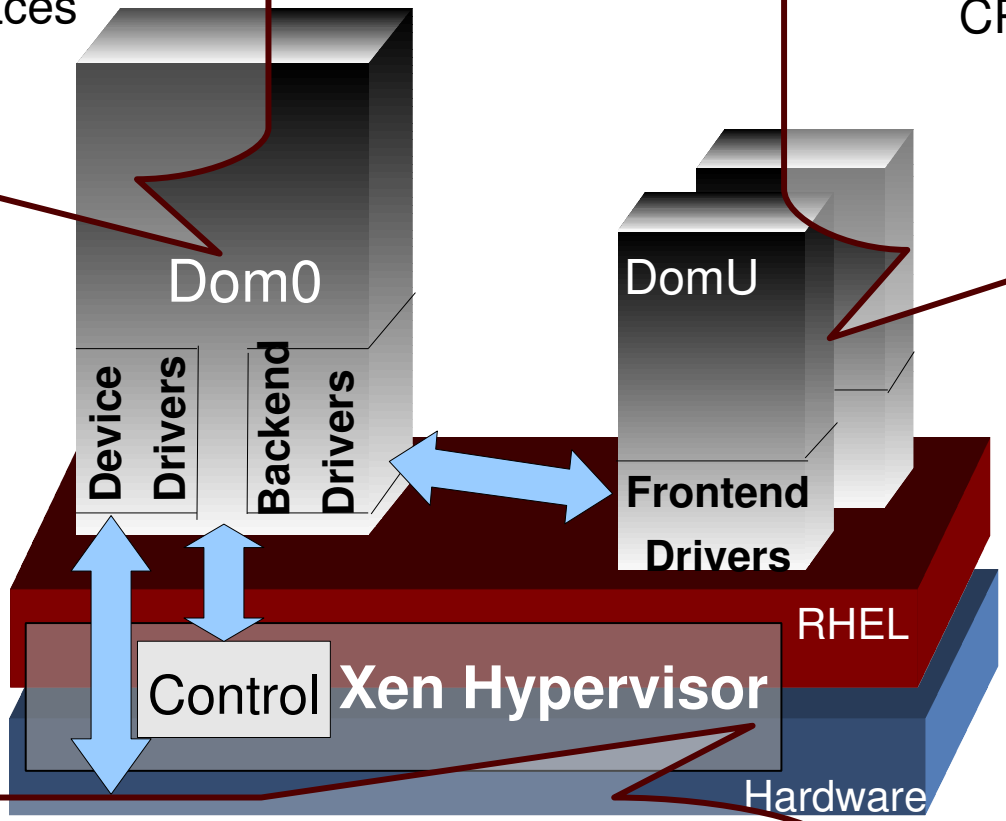
- Improved Enterprise Agility: Ability to migrate guests (in less than 100ms) from one environment to another in response to demand.
- Guests can be cloned to add redundancy or capacity without adding cost or managing complexity

Xen Architecture

Domain 0 – Privileged Domain, the host. Provides hardware support (backend drivers) interfaces for guests control and management tools

Unprivileged Domain: The Guest or the Virtual Machine.

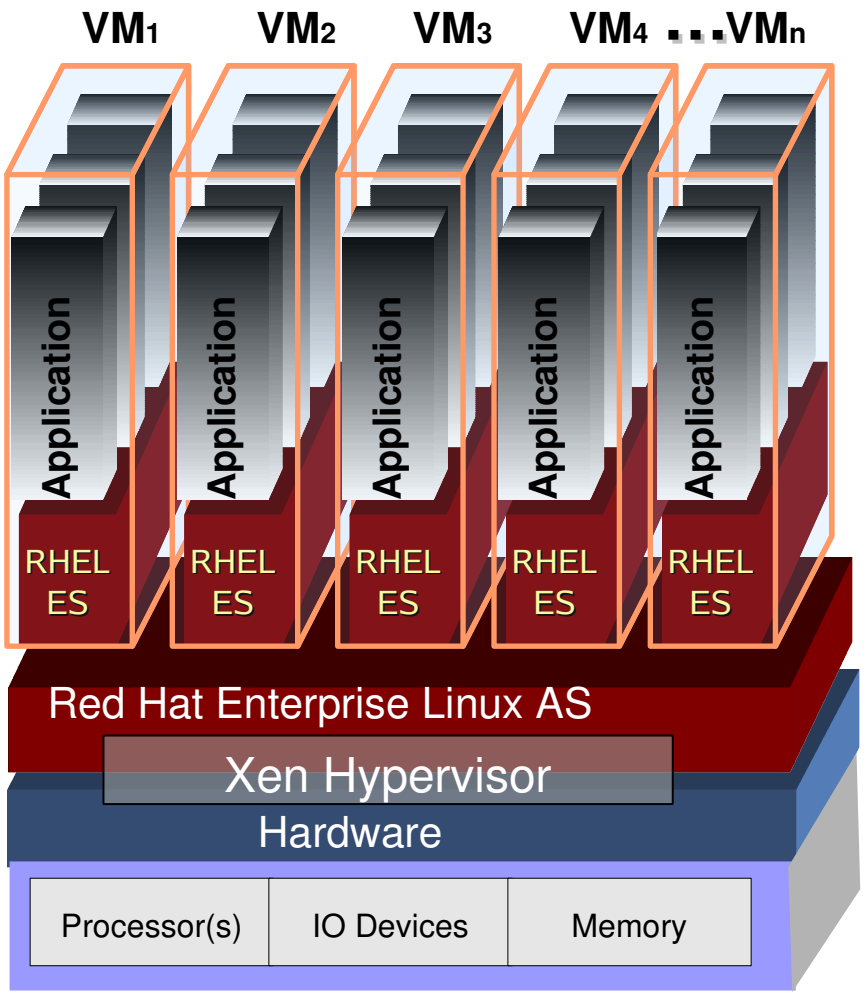
CPU, Memory, Storage



Xen Hypervisor provides IRQ routing, Scheduling , and inter-domains communications. The Hypervisor with the Dom0 Device Drivers provide transparent sharing of resources. It also enforces strict resource limitations (example: RAM).

Red Hat Virtualization Platform

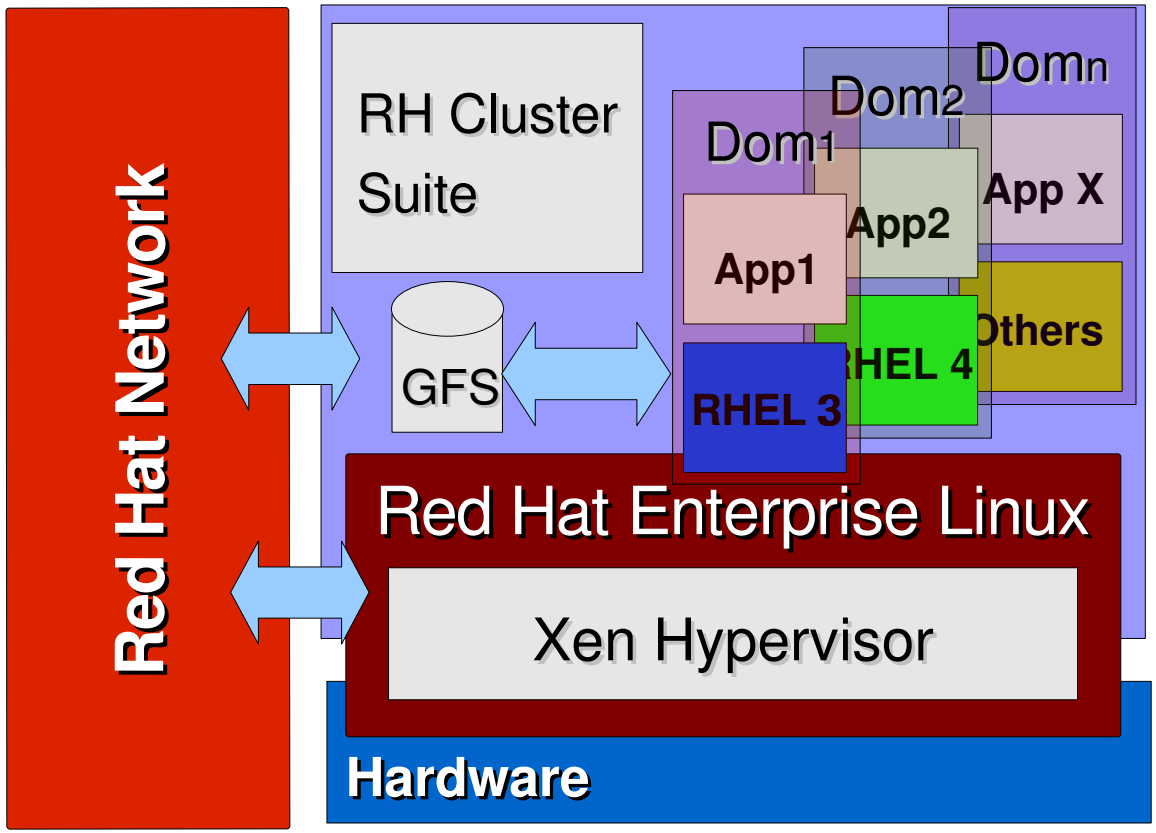
- Based on Xen Technology. Given the current level of performance and maturity, Xen is the undisputed leader in open-source virtualization.
- Operating System Integration yields significantly better performance.
- libvirt – local Virtual Machine (VM) management API that enables management and monitoring integration





Red Hat Added Value

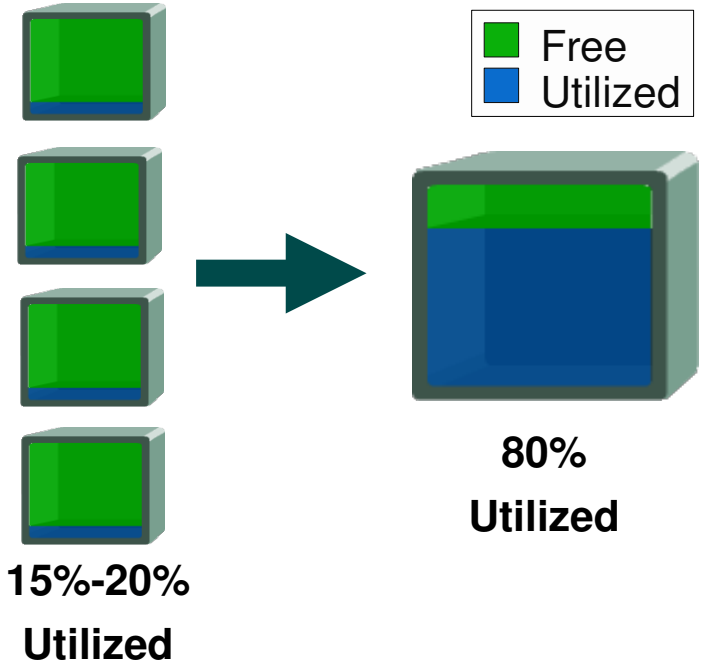
- Installation tools:
 - Anaconda "*Red Hat Installer*" is Virtualization-aware ; ease Virtualization setup and installation
- Management Tools:
 - Red Hat Network
- ISV and IHV Certification
- Storage:
 - Global File System (GFS) integration



Red Hat Delivers Useful, Reliable, and Tested Solutions

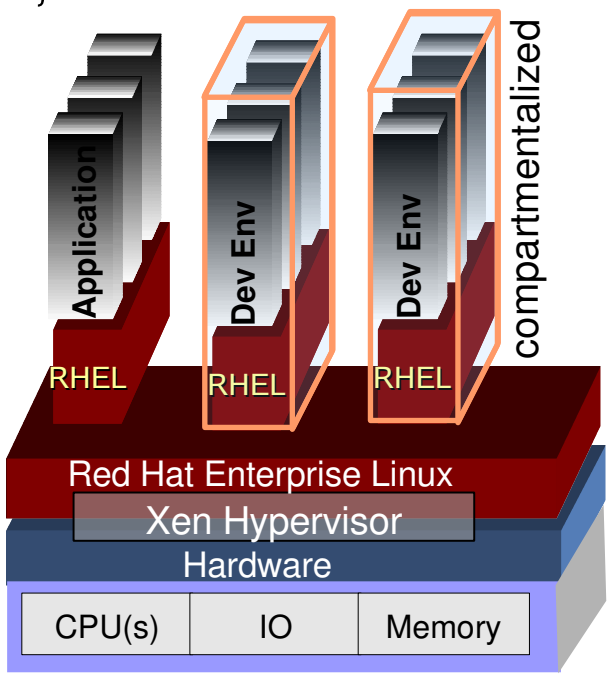
Solving Real Business Problems

- *Server Consolidation*: → Enhanced TCO
 - Current average utilization is between 15% to 25%
 - Current maximum Average utilization is 45%
 - Advantages for the data center:
 - Increase server utilization
 - Better workload
 - Reduce Power
 - Reduce Cooling
 - Reduce Space
 - Reduce Hardware Cost



Solving Real Business Problems

- Development and QA environments
 - Secure and compartmentalized instances; think "*chroot*" jail.
 - Simplify test scripting and execution for qualifications
 - Simplify test simulation
- Advantages
 - Rapid Deployment and Adoption
 - Shorten Certification Process





Solving Real Business Problems

- Other Use Cases:
 - Running Legacy applications on newer hardware
 - Reduced cost for: Provisioning, Manageability, and Security
 - Dynamic Migration of Workloads
 - Fault error containment
 - Disaster Recovery



Red Hat Virtualization: Roadmap

- Alpha - Technology Preview
 - Available now in Fedora Core 5

http://fedoraproject.org/wiki/FedoraXenQuickstartFC5



Summary

Some things *are* worth remembering...

- Xen is a paravirtualizing hypervisor system
 - High performance, but needs a modified OS kernel
- Can do full virtualization with hardware support
- Common use cases: consolidation, security, management, testing
- Advanced features: memory ballooning, live migration
- Xen is still in development
 - X86-64, IA64, PPC64 still in flux
- Xen is a technology to watch, it should be enterprise ready “soon”
- Xen is in Fedora Core 5



Questions



Thank You